## AMENDMENTS TO THE CLAIMS

1. (original) A mode-locked laser characterized by comprising:

a master laser which generates master laser light;

a mode-locked laser section including at least a modulating section, an amplifying section, and a bandwidth limiting section in an optical resonator, the bandwidth limiting section reducing mode partition noise; and

a signal generating section which generates a periodic signal serving for mode locking of said mode-locked laser section and to be applied to said modulating section, wherein

said master laser light is input to the optical resonator of said mode-locked laser section to cause injection locking.

2. (original) The mode-locked laser according to claim 1, characterized in that

said modulating section is one of an electro-absorption modulator and a saturable absorption modulator.

3. (original) The mode-locked laser according to claim 2, characterized in that

said mode-locked laser section includes a semiconductor laser having a plurality of electrodes that correspond to at least said modulating section and said amplifying section.

4. (original) The mode-locked laser according to claim 3, characterized in that

an optical resonator length is controlled by controlling at least one of a voltage applied to said modulating section, a current flowing through said amplifying section, and an operating temperature of said semiconductor laser.

5. (original) The mode-locked laser according to claim 1, characterized in that

said bandwidth limiting section is one of a band-pass optical filter, a diffractive grating, a Bragg grating, and a chirp Bragg grating.

6. (original) The mode-locked laser according to claim 1, characterized by further comprising

one of an optical isolator and an optical circulator disposed between said master laser and said mode-locked laser section, and stopping return light coming from said mode-locked laser section.

7. (original) The mode-locked laser according to claim 1, characterized in that

said mode-locked laser section has different ports with one for inputting said master laser light thereto and the other for outputting optical output therefrom.

8. The mode-locked laser according to claim 1, characterized in that:

said modulating section, amplifying section, and bandwidth limiting section are disposed in this order in the optical resonator of said mode-locked laser section and;

the master laser light is input from a modulating section side.

9. (original) The mode-locked laser according to claim 1, characterized by further comprising:

an optical modulating part which modulates the master laser light that is output from said master laser; and

a signal generating section which generates a periodic signal that is synchronized with the periodic signal applied to the modulating section of said mode-locked laser section, wherein

the maser laser light is input to said mode-locked laser section after being modulated by the periodic signal that is output from said signal generating section.

10. (original) The mode-locked laser according to claim 2, characterized by further comprising:

a modulating section average current measuring section which detects an average current flowing through the modulating section of said mode-locked laser section; and

an optical resonator length control section which controls an optical path length of the optical resonator of said mode-locked laser section, wherein

said optical resonator length control section controls the optical path length of the optical resonator so that the average current measured by said modulating section average current measuring section is to be smaller than an average current that flows when no master laser light is input to said mode-locked laser section.

11. (original) The mode-locked laser according to claim 10, characterized in that

said optical resonator length control section controls the optical path length of the optical resonator so that the average current measured by said modulating section average

current measuring section is to be smaller than or equal to 90% of the average current that flows when no master laser light is input to said mode-locked laser section.

12. (original) The mode-locked laser according to claim 1, characterized by further comprising:

an optical intensity measuring section which detects average optical intensity of optical output of said mode-locked laser section; and

an optical resonator length control section which controls an optical path length of the optical resonator of said mode-locked laser section, wherein

said optical resonator length control section controls the optical path length of the optical resonator so that the average optical intensity measured by said optical intensity measuring section is to be higher than average optical intensity that occurs when no master laser light is input to said mode-locked laser section.

13. (original) The mode-locked laser according to claim 12, characterized in that

said optical resonator length control section controls the optical path length of the optical resonator so that the average optical intensity measured by said optical intensity measuring section is to be higher than or equal to 105% of the average optical intensity that occurs when no master laser light is input to said mode-locked laser section.

14. (original) The mode-locked laser according to claim 1, characterized by further comprising:

a linewidth measuring part which detects a linewidth of a longitudinal mode included in optical output of said mode-locked laser section; and

an optical resonator length control section which controls an optical path length of the optical resonator of said mode-locked laser section, wherein

said optical resonator length control section controls the optical path length of the optical resonator so that the linewidth of the longitudinal mode measured by said linewidth measuring part is to be minimum.

15. (original) The mode-locked laser according to claim 1, characterized by further comprising:

a linewidth measuring part which detects a linewidth of a beat note of said master laser light and a longitudinal mode included in optical output of said mode-locked laser section; and

an optical resonator length control section which controls an optical path length of the optical resonator of said mode-locked laser section, wherein

said optical resonator length control section controls the optical path length of the optical resonator so that the linewidth of the beat note measured by said linewidth measuring part is to be minimum.

16. (original) The mode-locked laser according to claim 1, characterized by further comprising:

a CNR measuring part which detects a CNR of a longitudinal mode included in optical output of said mode-locked laser section; and

an optical resonator length control section which controls an optical path length of the optical resonator of said mode-locked laser section, wherein

said optical resonator length control section controls the optical path length of the optical resonator so that the CNR of the longitudinal mode measured by said CNR measuring part is to be maximum.

17. (original) The mode-locked laser according to claim 1, characterized by further comprising:

a CNR/intensity measuring part which detects a CNR or intensity of a beat note of said master laser light and a longitudinal mode included in optical output of said mode-locked laser section; and

an optical resonator length control section which controls an optical path length of the optical resonator of said mode-locked laser section, wherein

said optical resonator length control section controls the optical path length of the optical resonator so that the CNR or intensity of the beat note measured by said linewidth measuring part is to be maximum or highest.

18. (currently amended) An optical multi-carrier source characterized by comprising:

said mode-locked laser according to ~~any one of claims 1 to 17~~ claim 1; and

a waveguided optical nonlinear medium which receives optical output of said mode-locked laser and outputs optical multi-carrier that is generated by broadening a spectrum width of said optical output.

19. (currently amended) An optical multi-carrier source characterized by comprising:

said mode-locked laser according to ~~any one of claims 1 to 9~~ claim 1;

a waveguided optical nonlinear medium which receives optical output of said mode-locked laser and outputs optical multi-carrier that is generated by broadening a spectrum of the optical output of the mode-locked laser;

a linewidth measuring part which detects a linewidth of an optical carrier included in optical output of said waveguided optical nonlinear medium; and

an optical resonator length control section which controls an optical path length of the optical resonator of said mode-locked laser section, wherein

said optical resonator length control section controls the optical path length of the optical resonator so that the linewidth of the optical carrier measured by said linewidth measuring part is to be minimum.

20. (currently amended) An optical multi-carrier source characterized by comprising:

the mode-locked laser according to ~~any one of claims 1 to 9~~ claim 1;

a waveguided optical nonlinear medium which receives optical output of said mode-locked laser and outputs optical multi-carrier that is generated by broadening a spectrum width of said optical output;

a linewidth measuring part which detects a linewidth of a beat note of said master laser light and an optical carrier included in optical output of said waveguided optical nonlinear medium; and

an optical resonator length control section which controls an optical path length of the optical resonator of said mode-locked laser section, wherein

said optical resonator length control section controls the optical path length of the optical resonator so that the linewidth of the beat note measured by said linewidth measuring part is to be minimum.

21. (currently amended) An optical multi-carrier source characterized by comprising:

the mode-locked laser according to ~~any one of claims 1 to 9~~ claim 1;

a waveguided optical nonlinear medium which receives optical output of said mode-locked laser and outputs optical multi-carrier that is generated by broadening a spectrum of the optical output of the mode-locked laser;

a CNR measuring part which detects a CNR of an optical carrier included in optical output of said waveguided optical nonlinear medium; and

an optical resonator length control section which controls an optical path length of the optical resonator of said mode-locked laser section, wherein

said optical resonator length control section controls the optical path length of the optical resonator so that the CNR of the optical carrier measured by said CNR measuring part is to be maximum.

22. (currently amended) An optical multi-carrier source characterized by comprising:

the mode-locked laser according to ~~any one of claims 1 to 9~~ claim 1;

a waveguided optical nonlinear medium which receives optical output of said mode-locked laser and outputs optical multi-carrier that is generated by broadening a spectrum of the optical output of the mode-locked laser;

a CNR/intensity measuring part which detects a CNR or intensity of a beat note of said master laser light and an optical carrier included in optical output of said waveguided optical nonlinear medium; and

an optical resonator length control section which controls an optical path length of the optical resonator of said mode-locked laser section, wherein

said optical resonator length control section controls the optical path length of the optical resonator so that the CNR or intensity of the beat note measured by said linewidth measuring part is to be maximum or highest.

23. (original) The optical multi-carrier source according to any one of claims 18 to 22, characterized in that

said waveguided optical nonlinear medium has, in all or part of its length, such a characteristic that a dispersion (unit: ps/nm/km) at an average wavelength of the optical output of said mode-locked laser exhibits a positive-to-negative decrease.

24. (currently amended) The optical multi-carrier source according to ~~claim 23~~ any one of claims 18 to 22, characterized in that

said waveguided optical nonlinear medium has, in all or part of its length, such a characteristic that a wavelength dispersion characteristic is represented by a convex function.

25. (original) The optical multi-carrier source according to any one of claims 18 to 22, characterized in that

said waveguided optical nonlinear medium has, in all or part of its length, such a characteristic that a dispersion (unit: ps/nm/km) at an average wavelength of the optical output of said mode-locked laser varies between 0 and -0.5 (ps/nm/km) and that a wavelength dispersion characteristic is represented by a convex function.

26. (original) The optical multi-carrier source according to any one of claims 18 to 22, characterized in that

said waveguided optical nonlinear medium is a holey fiber in which an absolute value of a dispersion slope at an average wavelength of said optical output of said mode-locked laser is 0.1 ($ps/nm^2/km$) or less and a nonlinear coefficient $\gamma$ is 10 ($W^{-1}km^{-1}$) or more.

27. (original) The optical multi-carrier source according to any one of claims 18 to 22, characterized by further comprising

an optical amplifier disposed between said mode-locked laser and said waveguided optical nonlinear medium.

28. (original) The optical multi-carrier source according to any one of claims 18 to 22, characterized by further comprising

an optical pulse compressor disposed between said mode-locked laser and said waveguided optical nonlinear medium, and shortening a temporal duration of the optical output of said mode-locked laser.

29. (original) The optical multi-carrier source according to any one of claims 18 to 22, characterized in that components of said optical multi-carrier source maintain optical polarization.